UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

CIVIL ACTION NO. 10-11597-RGS

EVERYSCAPE, INC.
v.

ADOBE SYSTEMS, INC.

MEMORANDUM AND ORDER ON EVERYSCAPE, INC.'S MOTION FOR SUMMARY JUDGMENT OF NONINFRINGEMENT OF U.S. PATENTS NOS. 6,411,742 and 7,095,905

May 30, 2014

STEARNS, J.

In this motion (Dkt. #245), counterclaim-defendant EveryScape, Inc. moves for summary judgment of noninfringement of U.S. Patents Nos. 6,411,742 (the '742 patent) and 7,095,905 (the '905 patent).[1] EveryScape alleges that critical elements of the asserted claims are missing in its accused product and that, as a result, there can be no infringement. Counterclaim-plaintiff Adobe Systems, Inc. opposes the motion. Because the court agrees with EveryScape with respect to the positioning limitation, it will allow EveryScape's motion with respect to the '905 patent. Because

[1] Adobe has accused EveryScape of infringing, literally and also under the doctrine of equivalents, claims 1, 6-10, and 15-18 of the '742 patent and claims 1-3, 6, and 15-19 of the '905 patent.

there are material disputes of fact with respect to the contested elements of the '742 patent, the issue of infringement by EveryScape will be reserved for the jury.

BACKGROUND

The Adobe Patents

The '742 and '905 patents share the same title, "Merging Images to Form a Panoramic Image," and list John Peterson as their inventor. The patents describe methods of merging and blending overlapping photographic images of a view to form a panoramic whole. The '742 patent "addresses the problem of generating a panoramic image by merging multiple images captured using a camera that has a limited field of view." Opening Expert Report of Professor Robert Stevenson (Stevenson Opening Report) (Dkt. #371) ¶ 35. The principal disclosure of the '742 patent is a method of accomplishing a seamless merger of multiple paired images. The principal innovation of the '905 patent is the disclosure of "a method for determining the relative position of overlapping images without positioning information being provided," a method that "allow[s] greater flexibility in how images [are] captured and provided to the system." *Id.* ¶ 39. The result is a simplified process for producing panoramic images without the need for sophisticated camera equipment or photographic expertise. As Dr.

Stevenson explains, prior systems for capturing and processing a panoramic image "were fairly complex" and "used specialized lenses and/or mounts to capture a wide scene and specialized processing to produce panoramic prints." *Id*. ¶ 33.

The '742 patent was issued on June 25, 2002, and consists of 18 claims. Claim 1 is representative:[2]

> 1. A method for merging images, comprising:
>
> receiving images, each image representing a segment of a view;
>
> receiving position information specifying positions of the images relative to each other
>
> for each image and based on the position information, identifying all other images that overlap the image;
>
> grouping the images into pairs, wherein an image is grouped into a pair with each image identified as overlapping the image;
>
> defining a transition band for each pair of images;
>
> for each image in a pair of images, assigning a masking value for each pixel of the image, wherein the masking values specify complete visibility for each pixel in an area of the image that does not overlap the other image of the pair, the masking values specify partial visibility for pixels in the transition band, and the masking values specify complete invisibility for the remainder of the pixels in the image; and

[2] The parties agree that, with regard to the'742 patent, the wording of independent claims 1 and 10 is for all practical purposes identical, and that claims 6, 7, 8, and 9 depend on claim 1 and incorporate all of the limitations of claim 1.

merging the images using the calculated masking values.

'742 patent.

The '905 patent was issued on August 22, 2006, and has 27 claims.

Claim 1 is representative:[3]

1. A method of merging images of segments of a view, comprising:

receiving a first image representing a first segment of the view and a second image representing a second segment of the view;

determining the position of the second segment of the view relative to the first segment of the view without the aid of positioning information provided by a human operator;

blending the first image with the second image based solely on the content of the images and the determined position of the second segment relative to the first segment to merge the first image and the second image into a panoramic image of the view, wherein the blending comprises:

dividing the second image into a first portion and a second portion based on the position of the second segment relative to the first segment; and

compositing the first portion of the second image on the first image at a relative position of the second segment relative to the first segment to produce the panoramic image, the compositing of the first portion of the second image causing the first portion to mask out a part of the first image.

'905 patent.

[3] The parties agree that, with regard to the '905 patent, the wording of independent claims 1 and 15 is for all practical purposes identical, and that claims 2, 3, and 6 depend on claim 1 and incorporate all of the limitations of claim 1, and that claims 16, 17, 18, and 19 depend on claim 15 and incorporate all of the limitations of claim 15.

The Accused EveryScape System

EveryScape's accused product is marketed under the name "WebScape," which it describes as a "virtual tour of a location provided by a web interface." The accused WebScape service composes these "virtual tours" by stitching together a series of fisheye images to form 360 degree spherical panoramas. EveryScape uses several different software applications to create a WebScape, including "JobFarm," a software tool developed by Dr. Gelb Bahmutov, as well as third-party software called "PTGui." *See* Rebuttal Expert Report of Derek Hoiem, PhD (Hoiem Report) (Dkt. #300-10) ¶¶ 20-24.

The WebScape service uses twenty-four source images, taken at four specific viewpoints, and at six different exposure levels, to create a spherical panorama. The source images are acquired by photographers, known as "Ambassadors." The Ambassadors are required to use a fisheye lens (which has a field of view of approximately 170 degrees), and a tripod-mounted camera pitched upward approximately 10-12 degrees. After capturing the same field of view at six different exposure levels from a first viewpoint, the Ambassador rotates the camera horizontally by ninety degrees clockwise and takes another six images, followed by a second rotation of 90 degrees (to 180 degrees), and then another (to 270 degrees), capturing the view

each time at the six exposure levels, for a total of twenty four images.[4] *See* EveryScape Mem. (Dkt. #296) at 8.

The Ambassador is then instructed to log onto a website to upload the images to an EveryScape server. Because the images are taken in a specified order, the WebScape system considers the images to correspond to a known sequence of camera directions and exposure levels based on their sequential filenames. EveryScape then uses a template .pts project file (a component of PTGui) that provides initial estimates of the parameters corresponding to the source images, which EveryScape then modifies with

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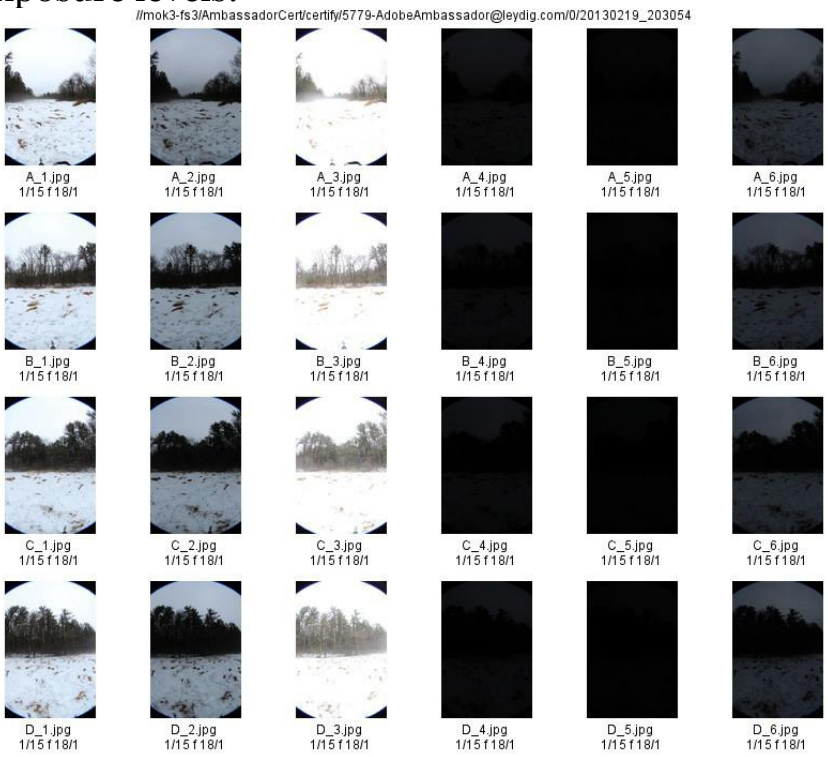
[4] Dr. Stevenson, Adobe's expert, performed a test following these instructions, which produced the following set of images. Each row corresponds to images taken at 90 degree increments at the different exposure levels:



assistance from another third-party software tool called "Enfuse."[5] The WebScape system uses PTGui to stitch the images together into one panorama (formed from four images) for each of the six exposure levels, according to the six .pts project files. These six panoramas are then blended by PTGui so that no abrupt transitions between the individual source images are visible. They are then merged, using the Enfuse tool, to produce the finished panorama. *See* EveryScape Mem. at 8-10.

Claim Construction

The court held a *Markman* hearing on October 5, 2012, and issued a Memorandum and Order (Dkt. #102) ruling on disputed issues of claim construction. The following terms or phrases were construed for purposes of this litigation (either by the court or by stipulation between the parties) as follows.

[5] The initial estimates are refined by the WebScape system as follows. Each set of six images is fused using Enfuse, resulting in four fused images which are utilized to modify the pitch parameters of the template .pts project file based on a vertical line detection algorithm. "Control points" are then found between pairs of adjacent images of the four fused images, and, based on the control points, additional parameters (such as field of view, optical distortion coefficients, image center, yaw, pitch, and roll) are modified through an iterative process that further adjusts the control points based on the parameter adjustments, and then further adjusts those parameters (based on the new control points), and then adjusts the control points again, and so on. *See* EveryScape Stmt. of Facts (Dkt. #298) ¶¶ 32-39.

Image ('742 patent)**:** Construed according to its ordinary meaning. *Id*., at 19.[6]

Contents of the images ('905 patent): Construed according to its ordinary meaning. *Id*.

Mask out ('905 patent): The court construed "mask out part of the first image" to mean "obstruct part of the first image." *Id*. at 22.[7]

Transition band: The court adopted the parties' stipulation that a "transition band" should be construed as "band at the changeover between two images in a pair." *Id*.

Position of the images relative to each other: The court adopted the parties' stipulation that this term should be construed as "for each image, position of the image relative to another image." *Id*.

DISCUSSION

Summary judgment is appropriate when "the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law." Fed. R. Civ. P. 56(a). For a dispute to be "genuine," the "evidence relevant to the issue, viewed in the light most

[6] The phrases at issue were: "each image," "all other images," and "grouping the images into pairs, wherein an image is grouped into a pair with each image identified as overlapping the image." *Id*.

[7] The court noted that the patent specification provide this internal definition of "mask out." *Id*. at 21-22.

flattering to the party opposing the motion, must be sufficiently open-ended to permit a rational factfinder to resolve the issue in favor of either side." *Nat'l Amusements, Inc. v. Town of Dedham,* 43 F.3d 731, 735 (1st Cir. 1995) (citation omitted). "Trialworthiness requires not only a 'genuine' issue but also an issue that involves a 'material' fact." *Id.* A material fact is one which has the "potential to affect the outcome of the suit under applicable law." *Nereida–Gonzalez v. Tirado–Delgado,* 990 F.2d 701, 703 (1st Cir. 1993). "[W]hen the facts support plausible but conflicting inferences on a pivotal issue in the case, the judge may not choose between those inferences at the summary judgment stage." *Coyne v. Taber Partners I,* 53 F.3d 454, 460 (1st Cir. 1995). "[I]f a party resists summary judgment by pointing to a factual dispute on which it bears the burden at trial . . . that party must point to evidence affirmatively tending to prove the fact in its favor." *FDIC v. Elder Care Servs., Inc.,* 82 F.3d 524, 526 (1st Cir. 1996).

Patent infringement analysis involves two steps: (1) the threshold construction of the meaning and scope of the asserted claim, followed by (2) a determination of whether the accused product infringes the properly construed claim. *Athletic Alts., Inc. v. Prince Mfg., Inc.*, 73 F.3d 1573, 1578 (Fed. Cir. 1996). A product infringes a patent only if "every limitation of the patent claim [can] be found in the accused device." *Gen. Mills, Inc. v.*

Hunt-Wesson, Inc., 103 F.3d 978, 981 (Fed. Cir. 1997); *see also Becton, Dickinson and Co. v. Tyco Healthcare Grp., LP*, 616 F.3d 1249, 1253 (Fed. Cir. 2010) ("To establish literal infringement, 'every limitation set forth in a claim must be found in an accused product, exactly.' Thus, 'if any claim limitation is absent from the accused device, there is no literal infringement as a matter of law.'") (quoting *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1575 (Fed. Cir. 1995), and *Amgen Inc. v. F. Hoffman-LA Roche, Ltd.*, 580 F.3d 1340, 1374 (Fed. Cir. 2009) (internal citations and modifications omitted)). If no reasonable jury could possibly find that an accused product satisfies every claim limitation of the asserted claims, either literally, or under the doctrine of equivalents, then summary judgment of noninfringement must be granted.

On first appearances, the experience offered by EveryScape through its WebScape service bears little resemblance to the products and systems that Adobe has created and/or marketed under the '742 and '905 patents. The EveryScape system requires the use of a special lens, a tripod, and Ambassadors working within a strict set of picture-taking parameters. This seems a world alien to the informal user-friendly regime described by Dr. Stevenson in his discussion of the Adobe patent. *See* Stevenson Opening Report ¶¶ 33, 39 (describing the Adobe patents as having eliminated the

need for "specialized lenses and/or mounts to capture a wide scene and specialized processing to produce panoramic prints," thus "allow[ing] greater flexibility in how images [are] captured and provided to the system"). From a user perspective, the EveryScape system is a limited application program used exclusively to create 360 degree panoramas from a fixed set of fused images and specified viewpoints. With one exception involving the overlapping limitation in the '742 patent, there is no genuine dispute as to how the accused WebScape service functions. Rather, the crux of the quarrel is whether the EveryScape process is encompassed by the claim language of Adobe's '742 and '905 patents.

The '742 patent

EveryScape identifies two relevant claim limitations in Adobe's '742 patent, a "masking limitation" and an "overlapping limitation," that it contends its system does not meet.

1. **The Masking Limitation**: *for each image in a pair of images, assigning a masking value for each pixel of the image, wherein the masking values specify complete visibility for each pixel in an area of the image that does not overlap the other image of the pair, the masking values specify partial visibility for pixels in the transition band, and the masking values specify complete invisibility for the remainder of the pixels in the image*

With respect to "masking," there is no disagreement over what the EveryScape system does and how it does it. When WebScape stitches pairs

of images together, each image in the pair is assigned a masking value specifying that the image's pixels are "visible in the area away from the transition band, partially visible in the transition band, and invisible from the transition band to the end of the overlapping edge of each image." Adobe Opp'n at 12.[8]

The parties' dispute is instead one of claim construction. EveryScape argues that the '742 patent contains a significant drafting error, teaching that, in each image in a pair, there are areas on *both* sides of the transition band where all pixels are set to complete invisibility. While acknowledging that this reading would essentially render the '742 patent useless, EveryScape maintains that its interpretation is necessitated by the unambiguous and plain meaning of the word "remainder."[9]

> The plain and ordinary meaning of the words in this claim limitation is straightforward. For each image in a pair, three

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[8] Adobe cites Dr. Stevenson's dot test as proof that WebScape operates in this fashion (and points to Figure 3C in the patent specification to show that such operation constitutes infringement). *See* Adobe Opp'n at 4-5. EveryScape does not dispute the test results, but argues that the test demonstrates that EveryScape's system does not meet the claim limitation "specify complete invisibility for the remainder of the pixels in the image" because at least one red dot is completely visible in an area where the images overlap, and the claim only specifies *complete* visibility for each pixel in an area of the image that does *not* overlap the other image of the pair. *See* EveryScape Mem. at 10-11.

[9] The term "remainder" was not raised at the claim construction hearing.

> regions are specified: (1) a part of the image that does not overlap the other image of the pair; (2) the transition band; and (3) the remainder of the image. If "the remainder" means that portion of the image that is overlapping the other image except for the transition band – as it must according to the plain language – then there is no dispute that EveryScape does not infringe the '742 patent claims.

EveryScape Mem. at 13. EveryScape asserts that a simple process of elimination (once the regions comprised of (1) "the area of the image that does not overlap the other image of the pair," and (2) "the transition band," have been specified) dictates that "remainder" must refer to the "regions of the first image that overlap the second image but are not a part of the transition band." EveryScape Mem. at 13-14. EveryScape interprets this to mean that "'[t]he remainder' includes the pixels not only in the area '**from** the transition band **to the edge** of the image that overlaps the other image' [] **but also** the pixels in the area **from** the transition band **to the opposite edge** of the image that overlaps the other image." EveryScape Reply (Dkt. #311) at 7 (emphasis added).

Adobe, for its part, pointing to Figure 3C in the '742 patent specification, asserts that "[t]he '742 patent clearly associates the "remainder" of each image with the area **from** the transition band **to the edge** of that image that overlaps the other image, as shown in Figure 3C."

Adobe Opp'n at 10 (emphasis added). The embodiment in the patent specification that Adobe points to, namely, Figure 3C, is reproduced below.

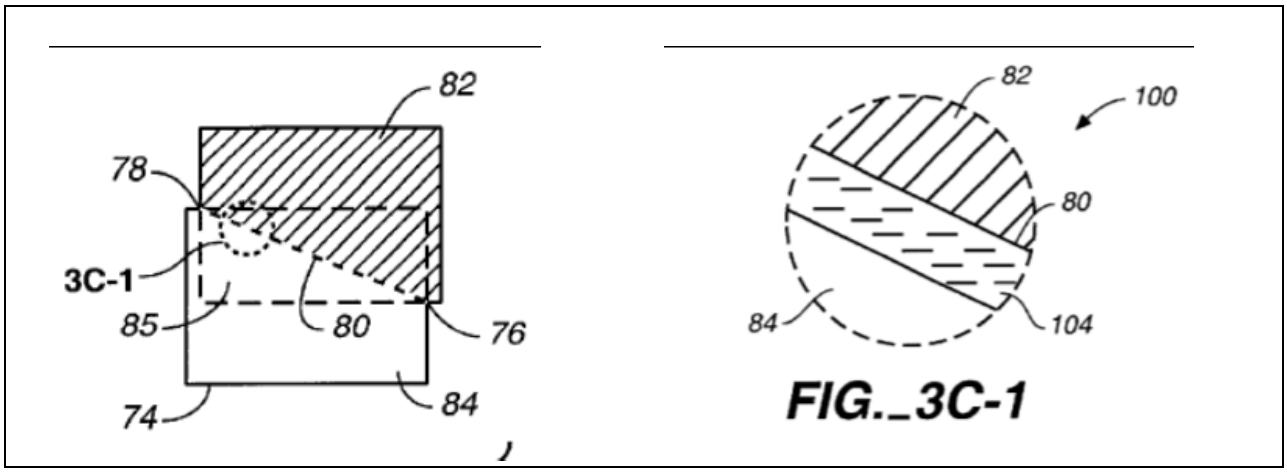


FIG._3C-1

Referring to this embodiment, Adobe argues that,

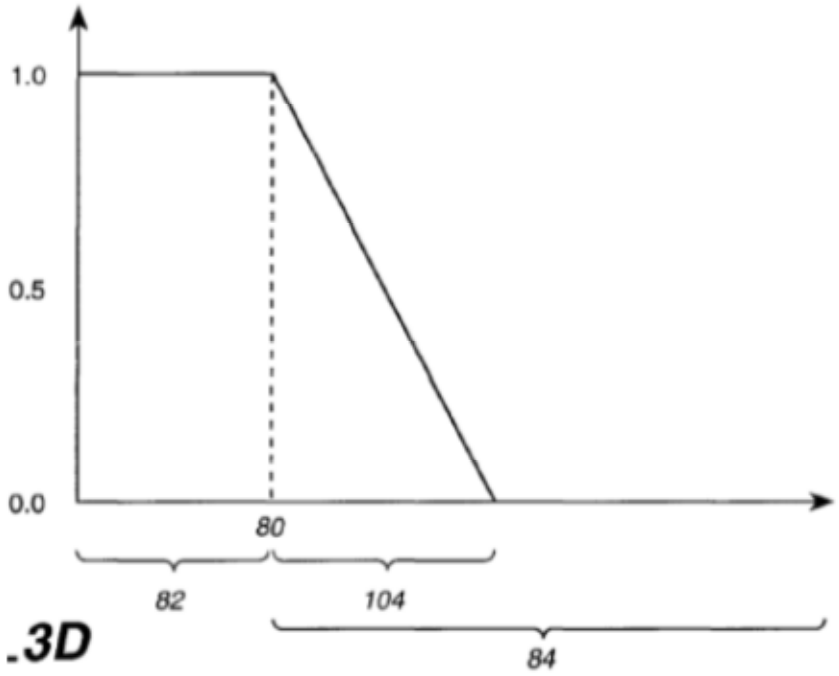
> [t]he teachings of the '742 patent art (sic) clear. As disclosed in Figure 3C of the patent, two images are aligned and then stitched into a seamless image by forming a transition band where the two images are blended. The transition band forms the boundary between the two images. **One image is visible on one side of the transition band and the other image is visible on the other side of the transition band.** As the patent states: "[T]he portions of the image profile 85 contained within section 84 are set invisible, leaving the hashed section 82 of the image 18b visible."

Adobe Opp'n at 9-10 (emphasis added). Adobe maintains that the masking limitation necessarily captures this embodiment. Adobe further notes that

EveryScape's reading is also contradicted by Figure 3D[10] of the specification "as well as the text of the patent, which describes a 'smooth' transition between the two images." Adobe Opp'n at 11. Emphasizing that the title of the '742 patent is "Merging Images to Form a Panoramic Image," Adobe avers that "any construction under which the final image is 'not a panorama' cannot be right." Adobe Opp'n at 12.

EveryScape acknowledges that its interpretation contradicts Figure 3C, and would result in a modified figure, as depicted below (from which the actual 3C embodiment would be excluded).

[10] Figure 3D iterates Figure 3C in the form of a graph, and is reproduced below:



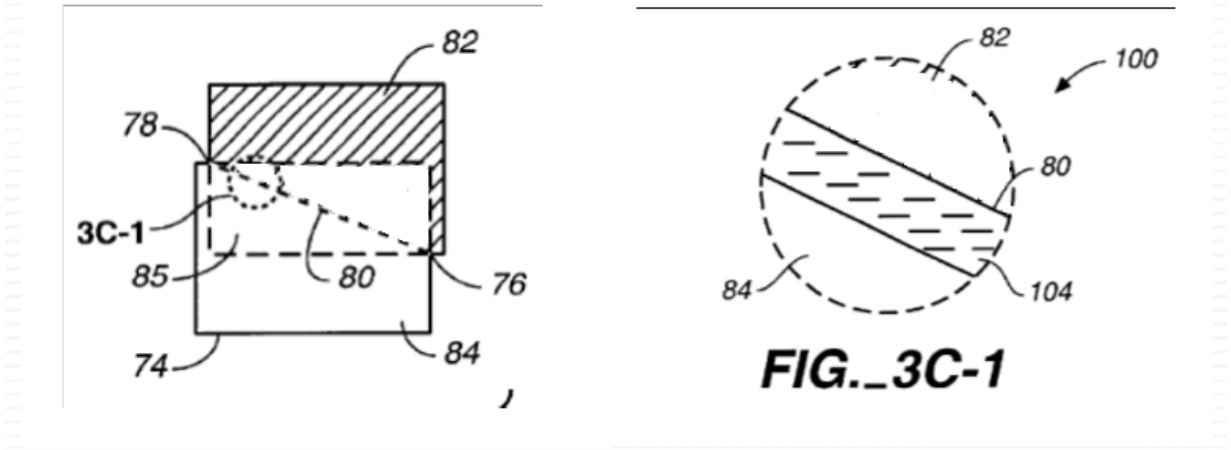


Image Modified by Court (not contained in '742 patent)

Nevertheless, EveryScape argues that Adobe's reading "urges a special definition for the 'remainder' of the pixels to mean some number of pixels less than the remainder of the pixels in the image" and "ignores the actual claim language." EveryScape Reply at 7.

EveryScape correctly notes that "where a claim is unambiguous, the plain and ordinary meaning of a claim governs the interpretation of that claim limitation even where such an interpretation excludes an embodiment from the specification." EveryScape Mem. at 15 (citing *General Atomics Diazyme Labs. Div. v. Axis-Shield ASA*, 277 Fed. Appx. 1001, 1008-1009 (Fed. Cir. 2008), and *Chef America, Inc. v. Lamb-Weston, Inc.*, 358 F.3d 1371, 1373–1374 (Fed. Cir. 2004)). *See also Elekta Instrument S.A. v. O.U.R. Scientific Int'l, Inc.*, 214 F.3d 1302, 1309 (Fed. Cir. 2000) ("[H]aving concluded that the amended claim is susceptible of only one reasonable construction, we cannot construe the claim differently

from its plain meaning in order to preserve its validity (upon which we do not opine)."). EveryScape essentially contends that, like the defendant in *Chef America*, the court cannot rescue Adobe from the "plain and ordinary" meaning of its own poorly drafted claim.

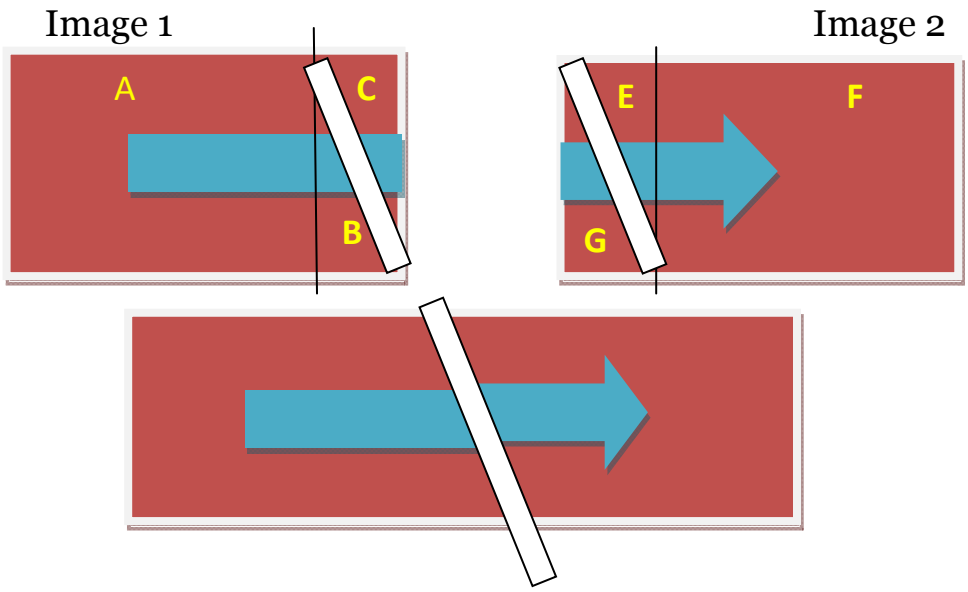
There is, however, a critical distinction between *Chef America* and the disputed masking claim at issue here.[11] Even if the court adopts the "plain and ordinary meaning" for the word "remainder," the masking limitation is ***not*** "susceptible of *only one* reasonable construction." The court agrees that the plain and ordinary meaning of the word remainder is what is "left over," or what "remains," after subtracting what is not. Tellingly, the parties' briefs do not marshal evidence for competing *definitions* of the

[11] In *Chef America*, the Federal Circuit declined to avoid a result that contradicted the stated purpose of the patent when the claim language was susceptible to only one reasonable interpretation – even though the text of the patent described a finished product wholly inconsistent with the relevant claim limitation. *Chef America*, 358 F.3d at 1374. The text of the patent in *Chef America* made clear that the patented process was intended to produce "dough products suitable for freezing and finish cooking to a light, flaky, crispy texture." *Id.* at 1373. The disputed claim required the "heating the resulting batter-coated dough to a temperature in the range of about 400 F. to 850 F." It would have been evident even to an amateur cook that dough cooked in this range would be "be burned to a crisp," and that the finished product would more resemble "a charcoal briquette" than the "light, flaky" dough described in the text of the patent. Nevertheless, the court declined to "redraft" the relevant claim to "insure that the patented process can accomplish its stated objective." *Id.* Rather, the claim was interpreted to mean exactly what it said, that the dough was to be heated to the specified temperature.

word "remainder," but rather focus on what areas of Figure 3C are *included* in the designation. Adobe and EveryScape agree that the word "remainder" should have its plain and ordinary meaning of "left over" (both parties agree that, after performing the first two masking steps specified in the claim, the "remaining" pixels, or all pixels that are left over, are set to complete invisibility); the dispute, rather, is about ***what*** is left over. Stated another way, the disagreement is over what areas are set to "complete visibility" in the first masking step: "specify complete visibility for each pixel in an area of the image that does not overlap the other image of the pair." The parties' respective "remainder-inclusive" arguments are clearly based on different interpretations of this phrase, which is indeed susceptible to more than one reasonable interpretation. Adobe's interpretation is that, once the transition band ("band at the changeover between two images in a pair") is defined, it is a foregone conclusion that one of the pair images is the dominant image on its side of the transition band, and that the other of the pair is the dominant image on its side of the transition band. Thus Adobe reads the first step of the masking limitation as specifying complete visibility for *each* individual pair image on the side of the transition band moving away from the other pair image (that is, on each image's "side" of the "changeover"). In other words, Adobe's reading

centers on the fact that the transition band is defined BEFORE the masking step occurs.

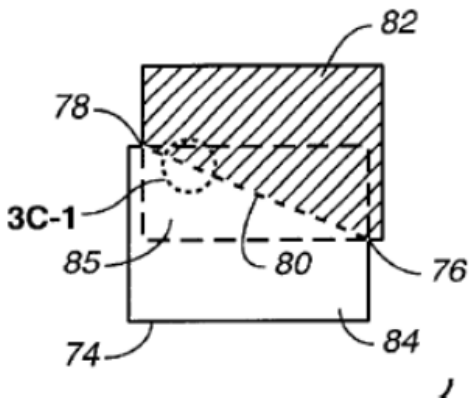
This may be more clearly demonstrated pictorially:



Once the patent teaches "defining a [band at the changeover between two images in a pair] for each pair of images," then the pixels in Image 1, above, are no longer "overlapping" on the left side of the transition band (the white diagonal area), and that the pixels of Image 2, above, are no longer overlapping on the right side of the transition band, because the band defines the "changeover" between the two images. Thus, when the masking step is implemented, according to Adobe, areas A, B, E, and F, are masked as "completely visible," because it has already been determined which image occupies each side of the transition band. The claim then

teaches partial visibility for the area in the transition band, and the remainder, areas C and G, are set to complete invisibility.

Again, areas B and E are not considered overlapping (contrary to EveryScape's interpretation) because the line of demarcation for each image in the pair (either side of the transition band) has already been delineated. "Remainder" then does not need to be interpreted as anything other than its plain and ordinary meaning, because only areas C and G are "left over". This is completely consistent with Figure 3C.



This is not to say that EveryScape's reading is implausible, or that EveryScape's reading is not the more "literal" reading of the phrases in claim one of the '742 patent. However, because the claim term is susceptible to more than one reasonable interpretation, and because claims should be construed, if possible, to sustain their validity, the court sees no reason to adopt an interpretation of "remainder" (or of "does not overlap")

that would render the patent useless.[12] *See, e.g.*, *Ortho-McNeil Pharm., Inc. v. Mylan Labs., Inc.*, 520 F.3d 1358, 1363 (Fed. Cir. 2008) (distinguishing *Chef America* as a case where "the only possible interpretation of the claim led to a nonsensical result," and noting that, when alternative interpretations are plausible, a district court "must interpret the term to give proper meaning to the claim in light of the language and intrinsic evidence" and "should [interpret the term] as the patentees intended," even if such interpretation disavows the "most common dictionary meaning.").

2. **The Overlapping limitation:** *for each image and based on the position information, identifying all other images that overlap the image*

EveryScape argues that its accused WebScape system does not identify ***all*** other images that overlap each individual image as the '742 patent requires. EveryScape asserts that, to create a WebScape, "non-adjacent images at a given exposure level overlap with one another but are not identified as overlapping (or are not grouped into pairs and processed as pairs according to the asserted claims.)." EveryScape Mem. at 17. To generate its 360-degree panoramas, EveryScape identifies "control points"

[12] Both parties acknowledge that adopting EveryScape's reading would leave blank stripes in the resulting composite image. Neither Adobe's products, nor the accused WebScape system, produce composite images with so obvious a defect (or if they did, would have no appeal to consumers).

between adjacent images (points in each image that represent the same depiction of physical space). EveryScape explains that while these "control points" are identified between the "0 degree" image and the "90 degree" image, no control points are identified between the "0 degree" image and the "180 degree" image.[13] Adobe does not dispute these facts.

EveryScape further maintains that, because a fisheye lens has a field of view of 170 degrees, and the Ambassador is instructed to tilt the camera upwards by about 10-12 degrees for each photo, the "0 degree" images and the "180 degree" images overlap at the top, as do the "90 degree" images and the "270 degree" images.[14] Adobe disputes this, noting that EveryScape's own expert, Dr. Bahmutov, testified that the top of a fisheye

[13] As explained, WebScape Ambassadors are instructed to take photos with a fisheye lens at four different camera rotations (0 degrees, 90 degrees, 180 degrees, and 270 degrees) to provide the ingredients for the resulting panorama.

[14] In theory, this would be possible because, imagining a 2-dimentional circle representing vertical space, and a 2 dimensional circle intersecting it at horizontally at 180 degrees, a photo taken with a fisheye lens from the center-point, facing a 0 degree point of the horizontal circle, and then pointed up by 10 degrees on the vertical-space circle to be positioned at the 80 degree point of the vertical-space circle, the vertical space captured would be from 355 degrees (or -5 degrees) to 165 degrees. Then if one were to turn horizontally to face the 180 degree point of the horizontal-space circle, and then tilt the camera up by 10 degrees, one would capture, with a 170 degree field, the vertical space of 195 degrees to 5 degrees (or 365 degrees). Thus, in theory, the "0 degree" photo and the "180 degree" photo would overlap at the top by 10 degrees.

image is "not that useful and usually very distorted," while Adobe's expert, Dr. Stevenson, testified that the PTGui software used by EveryScape creates a "crop circle" to trim the bottom and the top of the fisheye images, thereby removing potentially overlapping data before the blending process begins.[15] Thus, Adobe maintains, the EveryScape system, as practiced, in fact identifies all overlapping images, because "only adjacent pairs are overlapping." Adobe Opp'n at 5. EveryScape's response, that "[t]here can be no genuine dispute that the 0◦ image overlaps with the 180◦ image . . . because Adobe offers only conclusory allegations and unsupported speculation to the contrary," EveryScape Mem. at 13, apart from failing to factually rebut Dr. Stevenson's testimony, ignores EveryScape's burden as the moving party on summary judgment. Because there are material disputes of fact as to how the EveryScape system actually operates, summary judgment on this limitation will be denied.

The '905 patent[16]

[15] Adobe notes that the assertion of EveryScape's expert Dr. Bhamutov at his deposition, that at some point the images would overlap both at the top and the bottom, would be physically impossible.

[16] EveryScape identifies two relevant limitations in the asserted claims of the '905 patent: (1) the "positioning" limitation ("without the aid of positioning information provided by a human operator"), and (2) the "blending" limitation ("based solely").

EveryScape argues that the accused system does not meet either the blending limitation or the positioning limitation of the '905 patent.

1. **The Blending Limitation** – *blending the first image with the second image based solely on the content of the images and the determined position of the second segment relative to the first segment to merge the first image and the second image into a panoramic image of the view*

EveryScape, emphasizing the phrase "based solely on," argues that this claim limitation "imposes a requirement of simplicity that excludes more complex systems, such as the accused EveryScape system." EveryScape Mem. at 20. EveryScape alleges that its accused system uses more than just (1) the "content of the images," and (2) the relative position of the first to the second segment, to blend segments of a view together into a panoramic image. Specifically, EveryScape asserts that information independent of the two blended images, such as "numerous parameters provided in the .pts project file, as well as content and positioning information from images other than a first and second image," EveryScape Mem. at 19, is used to create a WebScape.[17] More specifically, the WebScapes are generated not by merging paired images, but by using four sets of fused images generated from photos taken at four specified viewpoints.

[17] According to EveryScape, PTGui uses at least nine separate parameters to blend images into a panorama.

Adobe asserts that EveryScape's argument confuses the blending step with other facets of the panorama creation process. It also disputes EveryScape's description of the output parameters of the .pts files as information used in the blending process. Dr. Stevenson, Adobe's expert, agrees that the .pts file templates "affect the output image that is saved and how it is saved," but contends that "they don't affect the blending." Adobe Opp'n at 17. [18] In other words, while Adobe acknowledges that parameters in the EveryScape system (other than the two specified in the blending limitation), "cause[] changes in the output panorama generated by PTGui," Adobe Opp'n at 17, it asserts that these independent parameters have no effect on the *blending* process itself.

As there is no dispute that the accused EveryScape system (necessarily) incorporates a blending method, the issue of whether its method falls within the '905 patent's blending limitation is fairly raised by way of a motion for summary judgment. The answer is apparent in the plain text of the limitation itself. When the phrase "based solely on" is read together with the postcedent language that it restrictively modifies – "the

[18] Dr. Stevenson also testified that the pitch and yaw parameter specifications included in a .pts file generated during an experiment that he conducted met the claim requirement of "determined position of the second segment relative to the first segment." As EveryScape points out, Dr. Stevenson did not analyze whether any of the other parameters in the .pts project files are integral to blending.

content of the [first and second] images and the determined position of the second segment relative to the first" – the result could not be clearer. Because it is undisputed that the EveryScape system uses parameters other than the two specified in the limitation to fuse multiple images into the resulting panorama, Adobe's attempt to redefine the independent parameters integral to EveryScape's blending process as simply "causing changes in the output panorama" is at best a semantic quibble.

2. **Positioning limitation** – *determining the position of the second segment of the view relative to the first segment of the view without the aid of positioning information provided by a human operator*

EveryScape argues that the accused system does not meet the positioning limitation because it *does* use "positioning information *provided* by a human operator" to determine "the position of the second segment of the view relative to the first segment of the view." WebScape relies on image filenames to "aid in a global alignment of the images to be merged by the system." This means that when an EveryScape Ambassador uploads source images to the WebScape interface, he or she "provides" the filenames to the accused EveryScape system. The positioning information is embedded in the filenames. While the '905 patent aligns randomly received images, the EveryScape system requires the Ambassadors to follow a specific set of instructions during image acquisition to ensure that when the images are uploaded they are sequentially aligned.

While Adobe concedes that the filenames contain "an incremented index that is a component of the positioning information," Adobe argues that "a human operator does not provide this positioning information" because "the *camera* automatically creates the filenames for the images." Adobe Opp'n at 16 (emphasis in original). Ultimately, this is much to do about nothing. It is undisputed that in the EveryScape system, a human actor is required to provide the system with properly ordered filenames, camera-generated or not, for a WebScape panorama to be created correctly, because the EveryScape system, unlike the Adobe '905 patent, *requires* this information in order to properly stitch the images together. The '905 patent describes a sophisticated innovation (elimination of a complex human task and the risk of human error at a critical point in the process) that is a marked advance over the EveryScape technology, but it does so by teaching an unequivocal limitation that WebScape does not incorporate.

Adobe makes the point that, to the extent that EveryScape argues that *any* involvement of a photographer defeats infringement, the argument is an absurdity, because a photographer has to take pictures to "get them into" the '905 patent's automated system. The court agrees with Adobe that simply because the '905 patent "can" do without a photographer does not mean that it must. But that is not what the '905 patent teaches. The import

of the positioning limitation is clear. It teaches a system that has the ability perform its task without any need for human-provided positioning information. Thus, it necessarily excludes a system like WebScape that *requires a* human operator *to correctly provide the positioning information*. Without the human-initiated position information (filenames corresponding to pictures captured *in a specified order*) to enable global alignment, EveryScape's panorama feature could not function. It therefore does not meet the claim limitation of "without the aid of positioning information provided by a human operator."

Doctrine of Equivalents and Prosecution History Estoppel

Adobe argues that the accused EveryScape system infringes the '742 and '905 patents under the doctrine of equivalents, whether or not one or more claims in either of the patents is found not literally to infringe. Under the doctrine of equivalents, "a product or process that does not literally infringe upon the express terms of a patent claim may nonetheless be found to infringe if there is 'equivalence' between the elements of the accused product or process and the claimed elements of the patented invention." *Applied Med. Res. Corp.* v. *Tyco Healthcare Grp. LP*, 534 Fed. Appx. 972, 977 (Fed. Cir. 2013) (quoting *Warner-Jenkinson Co., Inc. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 21 (1997)). Stated another way, if the differences

between a claim limitation and the comparable element of the accused product are insubstantial, infringement may be found under the doctrine of equivalents even though no literal infringement has occurred. *Warner-Jenkinson*, 520 U.S. at 40. A common test under the doctrine asks whether the accused product performs substantially the same function, in substantially the same way, to achieve substantially the same result as the claimed invention. *See Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 609 (1950).

According to Adobe, Dr. Stevenson performed the "function-way-result" analysis of EveryScape's patents and, not surprisingly, found EveryScape to infringe both the '742 and the '905 patents. Although EveryScape disputes whether Dr. Stevenson has shown in any convincing fashion that the WebScape system incorporates an equivalent of the claim limitations at issue, EveryScape more particularly relies on two equitable defenses, prosecution history estoppel and claim vitiation. In the first instance, EveryScape argues that Adobe cannot overcome the presumption of prosecution history estoppel, "[b]ecause [it] amended key elements of the asserted claims from both the '742 and '905 patents during prosecution for reasons related to patentability." EveryScape Mem. at 25. Second,

EveryScape argues that Adobe's theories of equivalence would entirely vitiate the relevant claim elements.

"Estoppel is a rule of patent construction that ensures that claims are interpreted by reference to those that have been cancelled or rejected." *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*, 535 U.S. 722, 739-40 (2002); *see also Tritek Techs., Inc. v. U.S.*, 67 Fed. Cl. 735, 758 (Fed. Cl. 2005) (prosecution history estoppel attaches to an added claim that is allowed without rejection where the added claim includes an additional limitation meant to narrow the rejected claim). The "masking" and "overlapping" limitations were added to the '742 patent in response to a June 20, 2001 rejection by the Patent and Trade Office (PTO). Thus, as EveryScape argues, "Adobe is barred from attempting to recapture subject matter pertaining to the amended claim limitations through the doctrine of equivalents . . . ." EveryScape Mem. at 22. Adobe's response that these substitutes merely reflect a "different direction" that did not serve to narrow the rejected claim does not withstand a comparison of the rejected language with the amended language eventually approved by the PTO. It is enough to simply quote Adobe's own description of the amendments. "The original claim had the steps of 'determining' a position, 'dividing' a second image, 'drawing' a first image, and 'drawing' a section of a second image. . .

. The replacement claims went in a different direction, and had the steps of: 'receiving images,' 'receiving position information,' 'grouping' images, 'defining a transition band,' assigning 'masking' values, and 'merging' images." Adobe Opp'n at 19. The result is not, as Adobe contends, an insertion of entirely new subject matter, but rather the substitution of a consumer's appreciation of a dish with the chef's disclosure of the recipe.

Under the rule against claim vitiation, there can be no infringement under the doctrine of equivalents if even one element of a claim or its substantial equivalent is absent in the accused device. In other words, the doctrine is "unavailable as a matter of law 'if a theory of equivalence would entirely vitiate a particular claim element.'" *Applied Med. Res. Corp.*, 534 Fed. Appx. at 977 (quoting *Warner-Jenkinson,* 520 U.S. at 39 n.8); c*f. Deere & Co. v. Bush Hog, LLC*, 703 F.3d 1349, 1356-1357 (Fed. Cir. 2012) (cautioning that the vitiation test is not satisfied by merely noting a missing element – something assumed by the doctrine of equivalents – it must also be apparent as a matter of law that the differences between the invention and the accused product are not insubstantial). As EveryScape forcefully notes, with regard to the "blending limitation" of the '905 patent, Dr. Stevenson states that its function is "to give adjacent images a smooth visual transition in the final panorama," and that "[t]he EveryScape system

performs the same or substantially the same function by causing PTGui to give adjacent images a smooth visual transition in the final panorama." Stevenson Opening Report ¶ 64. This theory of equivalence ignores the "based solely on" requirement of the limitation for which the EveryScape product offers nothing that is substantially equivalent.[19]

ORDER

For the foregoing reasons, EveryScape's motion for summary judgment of noninfringement is ALLOWED as to the '905 patent and DENIED as to the '742 patent.

SO ORDERED.

/s/ Richard G. Stearns
UNITED STATES DISTRICT JUDGE

[19] EveryScape also notes that, with regard to the masking limitation of the '742 patent, Dr. Stevenson stated that its function is "to ensure a proper mixing of adjacent images to create a smooth transition in the overlapping region." Stevenson Opening Report ¶ 51. Defined this broadly, the function would capture all methods of creating a panorama that blur the transition between two images, whether done by masking or some other method, while omitting the '742 patent's critical method of assigning masking values.